

AMENDMENTS TO THE CLAIMS

Kindly cancel claims 1, 11-17, 24, 26, 29-31, 38, 41-45, 50-55 and amend claims 2, 4, 10, 18-20, 23, 25, 27, 28, 32, 33, 34, 37, 39, 56, 57, 58 and 61 as shown in the listing of claims below.

This listing of claims will replace all prior versions, and listings of claims in the application.

LISTING OF CLAIMS

1 Claim 1. (cancel)

1 Claim 2. (currently amended) ~~The method of claim 1~~ A method for reducing stiction in a MEMS
2 device having a moveable element moveably coupled to a substrate, the method comprising:
3 a) providing the substrate with an anti-stiction member; and
4 b) interposing the anti-stiction member between the moveable element and the substrate,
5 wherein step b) includes actuating the moveable element to interpose the anti-stiction
6 member between the moveable element and the substrate.

1 Claim 3. (original) The method of claim 2 wherein step b) includes substantially immersing the
2 moveable element in a liquid during actuation of the moveable element.

1 Claim 4. (currently amended) ~~The method of claim 1,~~ A method for reducing stiction in a MEMS
2 device having a moveable element moveably coupled to a substrate, the method comprising:
3 a) providing the substrate with an anti-stiction member; and
4 b) interposing the anti-stiction member between the moveable element and the substrate,
5 wherein step a) includes providing an anti-stiction member that overhangs the moveable
6 element.

1 Claim 5. (original) The method of claim 4, wherein the anti-stiction member includes one or
2 more flexible portions.

1 Claim 6. (original) The method of claim 5, wherein the one or more flexible portions includes at
2 least one double-serpentine portion.

1 Claim 7. (original) The method of claim 4 wherein the anti-stiction member is made of a flexible
2 material.

1 Claim 8. (original) The method of claim 4 wherein step b) includes actuating the moveable
2 element whereby the moveable element engages the anti-stiction member causing the anti-
3 stiction member to flex.

1 Claim 9. (original) The method of claim 8 wherein step b) includes flexing the anti-stiction
2 member sufficiently to interpose the anti-stiction member between the moveable element and
3 the substrate.

1 Claim 10. (currently amended) ~~The method of claim 1~~ A method for reducing stiction in a
2 MEMS device having a moveable element moveably coupled to a substrate, the method
3 comprising:
4 a) providing the substrate with an anti-stiction member; and
5 b) interposing the anti-stiction member between the moveable element and the substrate,
6 wherein step a) includes:
7 providing a silicon-on-insulator (SOI) substrate;
8 defining the moveable element from a device layer of the SOI substrate; and
9 depositing a flexible material over the device layer and the moveable element such that
10 the flexible material overhangs the moveable element.

1 Claims 11-17 (cancel)

1 Claim 18. (currently amended) ~~The apparatus of claim 15~~ An apparatus for reducing stiction in a
2 MEMS device having a moveable element moveably coupled to a substrate, the apparatus
3 comprising:
4 an anti-stiction member that is interposable between the moveable element and the substrate,
5 wherein the anti-stiction member is attached to the substrate, wherein the anti-stiction
6 member is not attached to the moveable element, wherein the anti-stiction member is
7 cantilevered such that the anti-stiction member overhangs the moveable element.

1 Claim 19. (currently amended) ~~The apparatus of claim 15~~ An apparatus for reducing stiction in a
2 MEMS device having a moveable element moveably coupled to a substrate, the apparatus
3 comprising:
4 an anti-stiction member that is interposable between the moveable element and the substrate,
5 wherein the anti-stiction member is attached to the substrate, wherein the anti-stiction
6 member is not attached to the moveable element, wherein the anti-stiction member is made
7 from a flexible material.

1 Claim 20. (currently amended) ~~The apparatus of claim 15~~ An apparatus for reducing stiction in a
2 MEMS device having a moveable element moveably coupled to a substrate, the apparatus
3 comprising:
4 an anti-stiction member that is interposable between the moveable element and the substrate,
5 wherein the anti-stiction member is attached to the substrate, wherein the anti-stiction
6 member is not attached to the moveable element, wherein the anti-stiction member includes
7 one or more flexible portions disposed between a fixed end and a free end of the anti-stiction
8 member.

1 Claim 21. (original) The apparatus of claim 20 wherein the one or more flexible portions include
2 at least one serpentine portion.

1 Claim 22. (original) The apparatus of claim 20 wherein the one or more flexible portions include
2 at least one double serpentine portion.

1 Claim 23. (currently amended) ~~The apparatus of claim 15~~ An apparatus for reducing stiction in a
2 MEMS device having a moveable element moveably coupled to a substrate, the apparatus
3 comprising:
4 an anti-stiction member that is interposable between the moveable element and the substrate,
5 wherein the anti-stiction member is attached to the substrate, wherein the anti-stiction
6 member is not attached to the moveable element, further comprising a standoff attached to a
7 free end of the anti-stiction member.

1 Claim 24. (cancel)

1 Claim 25. (currently amended) ~~The apparatus of claim 24,~~ An apparatus for reducing stiction in a
2 MEMS device having a moveable element moveably coupled to a substrate, the apparatus
3 comprising:
4 an anti-stiction member that is interposable between the moveable element and the substrate,
5 wherein the anti-stiction member is attached to the substrate, wherein the anti-stiction
6 member is not attached to the moveable element,
7 further comprising means for electrically isolating the moveable element from a portion of
8 the substrate, wherein the means for electrically isolating includes an electrically insulating
9 standoff attached to a free end of the anti-stiction member.

1 Claim 26. (cancel)

1 Claim 27. (currently amended) ~~The apparatus of claim 15~~ An apparatus for reducing stiction in a
2 MEMS device having a moveable element moveably coupled to a substrate, the apparatus
3 comprising:
4 an anti-stiction member that is interposable between the moveable element and the substrate,
5 wherein the anti-stiction member is attached to the substrate, wherein the anti-stiction
6 member is not attached to the moveable element,
7 further comprising means for electrically isolating the moveable element from a portion of
8 the substrate, wherein the anti-stiction member includes a serpentine shaped portion that is
9 disposed between a free end and a fixed end of the anti-stiction member.

1 Claim 28. (currently amended) ~~The apparatus of claim 15~~ An apparatus for reducing stiction in a
2 MEMS device having a moveable element moveably coupled to a substrate, the apparatus
3 comprising:
4 an anti-stiction member that is interposable between the moveable element and the substrate,
5 wherein the anti-stiction member is attached to the substrate, wherein the anti-stiction
6 member is not attached to the moveable element,
7 further comprising means for electrically isolating the moveable element from a portion of
8 the substrate, wherein the anti-stiction member includes one or more double-serpentine
9 shaped portions that are disposed between a free end and a fixed end of the anti-stiction
10 member.

1 Claims 29-31. (cancel)

1 Claim 32. (currently amended) ~~The MEMS device of claim 28~~ A MEMS device, comprising:

2 a substrate;

3 a moveable element moveably coupled to the substrate, and

4 an anti-stiction member that is interposable between the moveable element and the substrate,

5 wherein the anti-stiction member is cantilevered such that the anti-stiction member

6 overhangs the moveable element.

1 Claim 33. (currently amended) ~~The MEMS device of claim 29~~ A MEMS device, comprising:

2 a substrate;

3 a moveable element moveably coupled to the substrate, and

4 an anti-stiction member that is interposable between the moveable element and the substrate,

5 wherein the anti-stiction member is made from a flexible material.

1 Claim 34. (currently amended) ~~The MEMS device of claim 29~~ A MEMS device, comprising:

2 a substrate;

3 a moveable element moveably coupled to the substrate, and

4 an anti-stiction member that is interposable between the moveable element and the substrate,

5 wherein the anti-stiction member includes one or more flexible portions disposed between a

6 fixed end and a free end of the anti-stiction member.

1 Claim 35. (previously presented) The MEMS device of claim 34, wherein the one or more

2 flexible portions include a serpentine portion.

1 Claim 36. (previously presented) The MEMS device of claim 34, wherein the one or more

2 flexible portions include at least one double-serpentine portion.

1 Claim 37. (currently amended) ~~The MEMS device of claim 29~~ A MEMS device, comprising:

2 a substrate;

3 a moveable element moveably coupled to the substrate, and

4 an anti-stiction member that is interposable between the moveable element and the substrate,

5 further comprising a standoff attached to a free end of the anti-stiction member.

1 Claim 38. (cancel)

1 Claim 39. (currently amended) ~~The MEMS device of claim 38,~~ A MEMS device, comprising:
2 a substrate;
3 a moveable element moveably coupled to the substrate, and
4 an anti-stiction member that is interposable between the moveable element and the
5 substrate, further comprising means for electrically isolating the moveable element from a
6 portion of the substrate, wherein the means for electrically isolating includes an electrically
7 insulating standoff attached to a free end of the anti-stiction member.

1 Claim 40. (original) The MEMS device of claim 39, wherein the means for electrically isolating
2 includes an electrically insulating portion of the moveable element.

3 Claims 41-45. (cancel)

1 Claim 46. (original) A method for fabricating a MEMS device, comprising:
2 providing a silicon-on-insulator (SOI) substrate;
3 defining a moveable element from a device layer of the SOI substrate; and
4 depositing a flexible material over the device layer and the moveable element such that one
5 or more portions of the flexible material overhang the moveable element,
6 wherein the flexible material is deposited such that the anti-stiction member is attached to
7 one end to a portion of the device layer,
8 wherein the flexible material is deposited such that the anti-stiction member is not attached to
9 the moveable element;
10 whereby the flexible material forms one or more anti-stiction members.

1 Claim 47. (original) The method of claim 46 wherein an insulating material is deposited between
2 defining the moveable element and depositing the flexible material.

1 Claim 48. (original) The method of claim 47, further comprising etching the insulating material
2 to release the moveable element.

1 Claim 49. (original) The method of claim 48, wherein the flexible material is resistant to an
2 etchant that is used to remove the insulating material.

1 Claims 50-55. (cancel)

1 Claim 56. (currently amended) ~~The optical switch of claim 50~~ An optical switch, comprising:
2 a substrate;
3 one or more moveable elements moveably coupled to the substrate, and
4 an anti-stiction member that is interposable between at least one of the moveable elements
5 and the substrate, wherein the anti-stiction member is cantilevered such that the anti-stiction
6 member overhangs the moveable element.

1 Claim 57. (currently amended) ~~The optical switch of claim 50~~ An optical switch, comprising:
2 a substrate;
3 one or more moveable elements moveably coupled to the substrate, and
4 an anti-stiction member that is interposable between at least one of the moveable elements
5 and the substrate, wherein the anti-stiction member is made from a flexible material.

1 Claim 58. (currently amended) ~~The optical switch of claim 50~~ An optical switch, comprising:
2 a substrate;
3 one or more moveable elements moveably coupled to the substrate, and
4 an anti-stiction member that is interposable between at least one of the moveable elements
5 and the substrate, wherein the anti-stiction member includes one or more flexible portions
6 disposed between a fixed end and a free end of the anti-stiction member.

1 Claim 59. (original) The optical switch of claim 58, wherein the flexible portion includes a
2 serpentine portion.

1 Claim 60. (original) The optical switch of claim 58, wherein the flexible portion includes at least
2 one double serpentine portion.

1 Claim 61 (currently amended) ~~The optical switch of claim 50~~ An optical switch, comprising:
2 a substrate;
3 one or more moveable elements moveably coupled to the substrate, and
4 an anti-stiction member that is interposable between at least one of the moveable elements
5 and the substrate, further comprising a standoff attached to a free end of the anti-stiction
6 member.